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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/693,010	10/23/2003	Patrick Brouhon	B-5274 621390-2	9369

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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
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EXAMINER

SUN, XIUQIN

ART UNIT	PAPER NUMBER
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2863

DATE MAILED: 12/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/693,010

Applicant(s)

BROUHON, PATRICK

Examiner

Xiuqin Sun

Art Unit

2863

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12-19 is/are allowed.
- 6) ☒ Claim(s) 1-11, 20 and 23 is/are rejected.
- 7) ☒ Claim(s) 21, 22 and 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/09/2005 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3, 4 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagai et al. (U.S. Pub. No. 20010055063) in view of Peless et al. (U.S. Pat. No. 6850024).

Regarding claim 1, Nagai et al. teach a method for determining the time-varying absolute position of a device with respect to a surface, comprising: moving the device with respect to the surface (sections 0051 and 0068); measuring a time-varying vector representing the relative movement of the device with respect to the surface during

motion of the device (sections 0068, 0070-0075 and 0086-0094); and initializing the position of the vector to the at least one absolute position measurement thereby measuring the absolute position of the vector and thus the time-varying absolute position of the device (sections 0068, 0070-0075 and 0086-0094).

Nagai et al. do not mention expressly: said surface having a position-encoded portion and an obscured portion, wherein the position-encoded portion bears accessible encoded position data and the obscured portion does not bear accessible position data; measuring at least one absolute position of the device with respect to the position-encoded portion of said surface during a portion of said motion when said position-encoded portion of said surface is accessible.

Peless et al. disclose a robot that has self-positioning system, including: a surface, on which the robot moves, having a position-encoded portion and an obscured portion (col. 6, lines 30-45), wherein the position-encoded portion bears accessible encoded position data and the obscured portion does not bear accessible position data (col. 6, lines 46-67); measuring at least one absolute position of the device with respect to the position-encoded portion of said surface during a portion of said motion when said position-encoded portion of said surface is accessible (col. 7, lines 12-45).

It would also have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teaching of Peless et al. into the invention of Nagai et al. in order to provide a simple and less-expensive means for precise measurement of the time-varying position of the robot device (Peless et al., col. 7, lines 12-25).

Regarding claims 3, 4 and 20, the teaching of Nagai et al. further includes: the detection of the absolute position and the time-varying vector is achieved by non-contact optical means (sections 0051-0055); the detection of the time-varying vector is achieved by non-contact relative optical means (sections 0051-0055); where the detection of absolute position is interrupted, attempting to interpolate across the interrupted area (section 0054).

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagai et al. (U.S. Pub. No. 20010055063) in view of Song et al. (U.S. Pat. No. 6841963).

Regarding claim 2, Nagai et al. teach a method of determining the absolute position of a stroke made by a measurement device with respect to a surface, comprising: detecting one or more pre-stored reference position indicia and thereby calculating at least one absolute position measurement of the device (sections 0110-0112); in conjunction with the aforementioned detection, measuring the relative movement of the device with respect to the surface and thereby calculating a time-varying motion vector representing the movement of the device with respect to the surface (sections 0054, 0055, 0067, 0068, 0070-0075 and 0086-0094); and calculating the absolute location of the stroke with respect to the surface on the basis of the at least one measurement of the absolute position in combination with the time-varying motion vector (sections 0068, 0070-0075 and 0086-0094).

Nagai et al. do not mention expressly: said surface having embedded thereon position encoding indicia; moving the measurement device over the position-encoded surface, and detecting and calculating said absolute position whenever the

measurement device passes over said one or more position encoding indicia, at any point of said motion.

Song et al. disclose a robot device and system, including: a surface having embedded thereon position encoding indicia (Figs. 6a-6d); moving the measurement device over the position-encoded surface (Fig. 7), and detecting and calculating said absolute position whenever the measurement device passes over said one or more position encoding indicia, at any point of said motion (cols. 7-8, lines 39-11).

It would also have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teaching of Song et al. into the invention of Nagai et al. in order to provide a simple and efficient algorithm for calculating the absolute position of the robot (Song et al., col. 8, lines 27-34).

5. Claims 5-9 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagai et al. in view of Peless et al., as applied to claim 1 above, and further in view of Silverbrook et al. (U.S. Pat. No. 6792165).

Nagai et al. in view of Peless et al. teach the method including the subject matter discussed above. The combination of Nagai et al. and Peless et al. does not mention: the detection of the at least one absolute position is performed by imaging a glyph bed which is applied to the surface; wherein the glyph bed is a machine-readable array of marking having absolute positions encoded therein; wherein the glyph bed is invisible to the human eye or alternatively adapted to not substantially interfere with the appearance of the surface when viewed by the human eye; wherein the glyph bed is applied using ink which is visible in the infrared part of the spectrum; the surface is

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overprinted with human-readable material in such a way as to obscure a portion of the glyph bed; and providing feedback to a user as to whether the stroke detection is successful or not, preferably in real time.

Silverbrook et al. teach a sensing device and method, including: performing a detection of the at least one absolute position by imaging a glyph bed which is applied to a surface (col. 5, lines 54-67; col. 13, lines 52-67 and col. 6, lines 10-24); wherein the glyph bed is a machine-readable array of marking having absolute positions encoded therein (col. 5, lines 54-67; col. 13, lines 52-67 and col. 6, lines 10-24); wherein the glyph bed is invisible to the human eye or alternatively adapted to not substantially interfere with the appearance of the surface when viewed by the human eye (col. 5, lines 54-67; col. 13, lines 52-67 and col. 6, lines 10-24); wherein the glyph bed is applied using ink which is visible in the infrared part of the spectrum (col. 5, lines 54-67); the surface is overprinted with human-readable material in such a way as to obscure a portion of the glyph bed (col. 6, lines 10-24); and providing feedback to a user as to whether the stroke detection is successful or not, preferably in real time (col. 19, lines 23-36).

It would also have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teaching of Silverbrook with the combination of Nagai et al. and Peless et al. in order to provide a system that most closely emulates the use of pen/pencil and paper (Silverbrook et al., Abstract and Figs. 1-8).

6. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagai et al. in view of Peless et al., as applied to claim 1 above, and further in view of Kinrot et al. (U.S. Pat. No. 6741335).

Nagai et al. in view of Peless et al. teach the method and measurement device that include the subject matter discussed above. The combination of Nagai et al. and Peless et al. does not mention explicitly: the detection of the relative position of the time-varying vector representing the movement of the device with respect to the surface is preferably measured using heterodyne or homodyne detection of non-doppler, non-speckle image signals derived from changes in the phase and/or the amplitude of reflection from an optical surface; the detection of the relative position of the time-varying vector representing the movement of the device with respect to the surface is measured using a transducer-based arrangement.

Kinrot et al. disclose a method and measurement device for determining the relative motion of a surface with respect to the measurement device, and teach: the detection of the relative position of a time-varying vector representing the movement of the device with respect to the surface is preferably measured using heterodyne or homodyne detection of non-doppler, non-speckle image signals derived from changes in the phase and/or the amplitude of reflection from an optical surface (col. 6, lines 54-58; col. 9, lines 60-67; col. 10, lines 1-6 and col. 13, lines 16-62); and the detection of the relative position of the time-varying vector representing the movement of the device with respect to the surface is measured using a transducer-based arrangement (col. 26, lines 36-58).

It would also have been obvious to one having ordinary skill in the art at the time the invention was made to include the teaching of Kinrot measurement device in the combination of Nagai et al. and Peless et al. in order to use a different but more accurate mechanism to measure a time-varying vector representing the movement of the device in respect to the surface (Kinrot et al., Abstract).

Allowable Subject Matter

7. Claims 12-19 are allowed.
8. Claims 21, 22 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Reasons for Allowance

9. The following is an examiner's statement of reasons for allowance:

The primary reason for the allowance of claim 12 and 14-19 is the inclusion of the limitation of a second measuring device arranged to determine a time-varying vector representing the relative movement of the device with respect to the surface, wherein the first measuring device is further arranged to determine said at least one absolute position of the device at any time while said second measuring device is determining said time-varying vector. It is this limitation found in each of the claims, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes these claims allowable over the prior art.

The primary reason for the allowance of claim 13 is the inclusion of the limitation of a second measuring device arranged to measure the relative movement of the device with respect to the surface and output a time-varying motion vector representing the movement of the device with respect to the surface, wherein the first measuring device is provided for determining said at least one absolute position of the device whenever the first measuring device passes by said one or more position encoding indicia during the relative movement of the measurement device. It is this limitation found in the claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

The primary reason for the allowance of claim 21 is the inclusion of the claimed method step of sanity checking interpolation and stroke reconstruction based on the statistically possible locations of strokes applied to the surface. It is this limitation found in the claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

The primary reason for the allowance of claim 22 is the inclusion of the claimed method step of sanity checking absolute position measurements in respect of the sequence of stroke detection events of a surface by reference to user ergonomics, physical size of the surface, type of stroke applied or the speed of application of the stroke. It is this limitation found in the claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

The primary reason for the allowance of claim 24 is the inclusion of the limitation that the claimed method is adapted to detect the absolute position of a plurality of strokes, said strokes constituting writing, wherein sanity checking of the absolute position detection is performed based on a forward looking probabilistic algorithm responsive to the physical writing environment and process. It is this limitation found in the claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Prior Art Citations

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- 1) Sekendur (U.S. Pat. No. 5852434) discloses a method and apparatus for absolute optical position determination.
- 2) Pettersson et al. (WO 0126032A) disclose an encoded paper for optical reading.
- 3) Idemura (U.S. Pat. No. 6788888) discloses an optical device and image sensing system.

- 4) Gordon-Ingram (U.S. Pat. No. 6603115) discloses a measurement scale and system incorporating a measurement scale for determining absolute position.

Response to Arguments

11. Applicant's arguments received 11/09/05 with respect to claims 1-11, 20 and 23 have been considered but are moot in view of the new ground(s) of rejection.

Claims 1-11, 20 and 23 are rejected as new prior art references (U.S. Pat. No. 6850024 to Peless et al.; and U.S. Pat. No. 6841963 to Song et al.) have been found to teach the limitation of argued by the Applicant. Detailed response is given in sections 2 and 3 as set forth above in this Office Action.

Contact Information

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xiuqin Sun whose telephone number is (571)272-2280. The examiner can normally be reached on 6:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571)272-2269. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Xiuqin Sun
Examiner
Art Unit 2863

XS

November 28, 2005


John Barlow
Supervisory Patent Examiner
Technology Center 2800